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Whittemore School Students Take First-Hand Look at Technology Innovation

By [Janet Lathrop](#)
UNH News Bureau

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DURHAM, N.H. -- There wasn't any better way for University of New Hampshire business students to learn about the importance of "getting it right the first time" when purchasing high-tech diagnostics than to visit the magnetic resonance imaging (MRI) laboratory deep beneath Brigham & Women's Hospital in Boston, says Christine Shea, professor of technology and operations management at UNH's Whittemore School of Business and Economics.

"It's one thing to discuss this in the classroom," she explains. "It's another to troop down into the basement to this enormous machine and see that you don't buy a piece of equipment weighing several tons on a trial basis. They had to take floors out to install it and would have to do the same to return it."

Judging from a recent hospital field trip, Shea believes students learn many things. For example, they hear the level of comfort needed before hospital planners, technologists and physicians decide to purchase something like an MRI unit. "We felt the intensity and importance of the vendor-customer relationship first hand at Brigham and Women's," she adds.

Through a former student who is now a department manager at the hospital, Shea arranged the tour for the 15 MBA students in her "Managing Technology Innovations" class. Where others may see only "gee-whiz" technology, Shea encourages her students to look behind the curtain and ask: What are the impacts of technological progress on various stakeholders in the health care industry? How big a market has to exist before the industry can afford to develop a new

product? What is its expected useful life? Who should be trained to operate it? How do you go about balancing innovation and efficiency?

Garbed in surgical scrubs and booties, the business students watched a patient undergo an MRI scan and listened as a manager discussed some of the practical challenges of "supply chain management" related to the hospital's centralized new repository of X-rays, MRI scans, CAT scans and so on. Here, one key question for hospital administrators and manufacturers of the new tool was whether to train a radiologist to operate the computer or train a computer programmer to understand the diagnostic images.

"That dilemma faces every dot com," says Shea, and it represents a classic challenge of computerization -- how to "manage the supply chain in such a way as to eliminate non value-added activity, thereby maximizing efficiency and profitability." Her students left understanding vendor-customer partnership in a new way, and knowing why training a radiologist on the new equipment made sense and the other option did not.

Later, the UNH students were thrilled to meet a real innovator -- a neurosurgeon troubled by the fact that 80 percent of surgeries to remove brain tumors leave cancer cells behind because it is so difficult to identify them by sight alone. He developed a way to perform the surgery with the patient inside an MRI machine, which color-codes cancer cells and enables a surgeon to remove all identifiable diseased tissue. The physician-inventor championed the idea through research and development to the final product.

That this innovation required a 100 percent "re-tool" of surgical instruments for use near a huge magnet was not lost on the business students. Back in the classroom, they buzzed about the cost, design requirements and planning that went into producing an entire array of new surgical instruments without metal. Non-ferrous scalpels, saws, needles, light sources and mirrors, valves, timepieces -- everything used near the huge magnet was changed.

Shea believes that in training successful managers today, the Whittemore School must help students learn to appreciate the need for innovation and the necessity

of multi-disciplinary partnerships, as well as the capabilities of tools like computers, software and information technology. All will help an organization stay agile, Shea explains, and flexibility is one of the most powerful tools helping business to manage technology.

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